

Amendments to the Claims:

Please amend the claims as set forth hereinafter.

Listing of Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A sensor comprising

~~a cantilever (3), wherein having a position of the cantilever (3) depends on a parameter to be measured,~~

a first mirror being arranged on said cantilever,

~~an optical resonator (15) formed between two reflecting mirrors, wherein a first mirror is arranged on said cantilever (3) and wherein having a length of said resonator (15) depends that is dependent on the position of the cantilever (3),~~

characterized by

~~a lens assembly (10) for focussing focusing light onto the cantilever and (3), said lens assembly (10) having an output surface (12b) facing the cantilever (3),~~

wherein

the position of the cantilever depends on a parameter to be measured,

~~said output surface (12b) is concave and forms a second mirror of said resonator (15), and~~

said resonator is formed between said first and second mirror.

2. (Currently Amended) The sensor of claim 1 wherein said output surface (12b) is substantially parallel to impinging wavefronts of a standing optical wave within said resonator (15).

3. (Currently Amended) The sensor of ~~any of the preceding claims~~ claim 1 wherein said lens assembly (10) comprises an output lens having a convex first face (12a) and a concave second face (12b), wherein said second face (12b) forms said ~~exit~~ output surface.

4. (Currently Amended) The sensor of claim 3 wherein said lens assembly (10) comprises an input lens (11) for projecting a divergent incoming light field (9) onto said output lens.

5. (Currently Amended) The sensor ~~any of the preceding claims~~ of claim 1 further comprising an optical fiber (8) wherein said lens assembly (10) projects an end (8b) of said optical fiber (8) onto said cantilever (3).

6. (Currently Amended) The sensor of ~~any of the preceding claims~~ claim 1 wherein said output surface (12b) is coated with a reflective coating.

7. (Currently Amended) The sensor of ~~any of the preceding claims~~ claim 1 wherein said cantilever (3) is coated with a reflective coating.

8. (Currently Amended) The sensor of ~~any of the preceding claims~~ claim 1 wherein said light is not broken at the output surface (12b).

9. (Currently Amended) The sensor of ~~any of the preceding claims~~ claim 1 wherein said cantilever (3) is a lever being fixed at a first end and ~~deviatable~~ deflectable at a second end.

10. (Currently Amended) The sensor of ~~any of the preceding claims~~ claim 1 wherein said resonator has a loss of less than 20% per round trip.

11. (Currently Amended) ~~The lens assembly of any of the preceding claims~~ The sensor of claim 1 wherein said lens assembly is mounted to a positioning device for positioning a light spot on different parts of the cantilever.

12. (Currently Amended) A scanning force microscope ~~with~~ comprising the sensor of ~~any of the preceding claims~~ claim 1.